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DAKOTA ZEPHYR

NOVEMBER, 1938

VOL. 3 NUMBER 8

Published by: The Soil Conservation Service

Brookings, South Dakota

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Dear Cooperator:

Soil-Saving Practices Boost Yields

Small grain and corn yields running from a third more to approximately twice the average yields in his neighborhood were credited this year by J.L. Baptie largely to the added moisture saved by basin listing and contour tillage on his farm 15 miles northwest of Sioux Falls.

Thus he reported threshing 59 1-2 bushels of 46-pound barley to the acre and 64 1-2 bushel oats on his northeast forty, the steeper slopes of which were contour basin listed in the fall of 1936 and which was in corn last year. Baptie said barley in the average field in the vicinity ran 15 to 18 bushels. Nearby oats not on basin listed ground, he said, averaged 38 to 39 bushels.

"The barley stood up exceptionally well all during the season and showed no fire burn during the hot winds," he explained. "Those oats apparently stood the dry period better than did any of the neighboring fields. We left these oats three days after they appeared to be ripe, and they filled at

least 25 percent during that time."

He had another 12 acres basin listed last fall for alfalfa seeding this spring with one bushel of oats to the acre as a nurse crop. He let them stand as a cover during the hot wind period before harvesting them and leaving 18-inch stubble as late protection. These yielded 45 bushels an acre.

Baptie also reported that prolonged dry weather had little bad effect on his new alfalfa; whereas other new seedings burned out. Similarly, he obtained a good stand of permanent grass mixture seeded last spring on a nearby five acres with oats as a nurse crop.

The Minnehaha County operator, who is farming on an erosion-control demonstration farm basis through the South Dakota State Extension Service with the assistance of the Soil Conservation Service called attention to 15 acres drilled to corn this year. Eight acres on the knoll were basin listed in the fall of 1937, before terrace guide lines were plowed across the level of the slope on the seven acres below.

"This basin-listed plot on the high knoll produced a corn crop of any consequence for the first time in nine years this season," Baptie reported. "That between the guide lines also was noticeably improved over previous years' crops, both in height of the corn and the number of ears maturing. Up above the terrace lines for 15 to 20 feet, the corn stayed exceptionally green and grew on an average of two feet taller than it did close to the lower side of the next terrace above. The height of the corn on the basin listed land was uniform, too.

"We had no difficulty whatsoever in cultivating the contoured corn, and the easier pulling on the level rows also saved power. The level rows prevented a repetition of the enormous amount of soil wash of the past. The soil filled four inches in the corn furrows; but if it hadn't been for the contouring, it would have washed all the way to the bottom of the hill. We had only about three places that heavy rains broke through the dikes, and they were raised this fall with an extra furrow.

"This year, it took only 62 loads off of that field to fill the silo, compared with 72 loads last year. This silo corn stood two weeks longer than any of the surrounding five silo corn plantings. It stayed greener from the moisture from the terracing and basins." Also in this forty are seven acres of pasture on which contour furrows distribute run-off water over the grass.

"Outside of about an acre in the bottom of the draw," Baptie said, "we did not have any grass until these spreader furrows were plowed on the contour last spring. It was noticeable this summer that the water flooding made the grass grow until it is already back close to its original condition, though it had gotten so bad that I had planned to plow it up."

Baptie said, "Eight acres of his south-

west forty were basin listed in the fall of 1936, and last fall the whole 30 acres was basin listed for corn, going in "nine" directions to keep across the slopes." He said this corn stood the drought and hot winds better than any corn in the neighborhood on similar land, that there was virtually no soil washing and that he estimated the yield to average about 35 bushels of good, uniform ears. Other fields in the vicinity, he said, had been running from 12 to 20 bushels.

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New Conservation District Proposed For Lyman County

The four soil conservation districts in South Dakota may soon be joined by a fifth, if present plans are carried to completion. There were a number of meetings held in October in Lyman county at the request of the County Agent and the local people. At that time, the conservation districts law was explained, and the procedures to follow in organization were outlined.

Petitions from the American Creek District in the eastern part of Lyman county were received by the State Committee on November 1. A hearing will be held in Reliance on November 23, at which time the State Committee will determine whether there is a need for a district in that territory. If the Committee decides there is no necessity for a district, there can be no further action for six months.

If, however, the State Committee decides that there is a need for a district in Lyman County, a referendum will be held to determine if the landowners are in favor of its organization. If the referendum is favorable, it will be followed by the appointment and election of supervisors and the adoption of a work plan and program.

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Two Areas Approved For Water Facility Action

Two areas in South Dakota have been approved by the National Water Facilities Board for an action program. These areas are the Brule-Buffalo and Tri-County Soil Conservation Districts. The entire Crow Creek and Sulphur Creek drainages have been selected for further study. The area plan for the Sulphur Creek drainage on the north side of the stream was prepared by the Bureau of Agricultural Economics and was presented to the State Land Use Committee at a meeting in Huron, November 7. The Committee approved the plan and submitted it to the Water Facilities Board in Washington. If approved by that board, the area plan will be presented to the County Land Use Planning Committee and to the farmers of the area as a basis for follow-up action in the Water Facilities Program in the area.

The Water Facilities Act was passed in 1937, but money was not made available until this year. The procedure for operation was set up after July 1 and it was not until September that the areas were selected for work in this state.

The Soil Conservation Service is the action agency in this program, and approves all water facilities and supervises their construction. These water facilities may include dams, wells, spring development, windmills, pumps, and many other types of facilities. The Farm Security Administration makes the money available to the individual for the construction of the facilities. It also determines the amount that is to be loaned and the terms for repayment. The Bureau of Agricultural Economics assists by making area plans in the areas that are recommended for approval. These plans must be completed before the Water Facilities Board is able to approve an area.

The two soil conservation district areas were the first selected in South

Dakota because of the fact that complete area plans had been made and the areas therefore were acceptable to the Water Facilities Board.

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Reorganization Broadens Land-Use Conservation Scope

Recently announced reorganization plans in the U. S. Department of Agriculture have broadened materially the land-use and conservation activities of the Soil Conservation Service, but in no way disturb existing project, district, and other work in which South Dakota and other farmers have been cooperating.

The new organization means the consolidation under Service direction of the action phases of land-use programs on individual farms, ranches, watershed and other areas except park, forest, and wildlife lands. These include operating phases of erosion control, water facilities, flood control, land utilization-including submarginal land purchase and development and farm forestry activities of the Department.

General over-all planning on which these activities are based similarly is consolidated under the Bureau of Agricultural Economics.

When the Soil Conservation Service became a permanent bureau in the Department of Agriculture, it was concerned primarily with erosion control and related water and moisture conservation on farm lands for demonstration purposes. Although this primary objective remains, the broader, related land-use direction assigned to the Service is expected to increase its service and effectiveness in aiding farm groups and individuals in working out their conservation farming problems and methods, especially in soil conservation districts and other important areas.

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Extension Service Issues New Conservation Circular

Soil Conservation, An Elementary Discussion for Use in Grade Schools, is the title of Extension Circular 376 which was printed by the South Dakota State College Extension Service in September 1938. This bulletin was prepared in cooperation with the State Department of Public Instruction and copies have been supplied to every rural teacher in the state.

The erosion problems, the objectives of the publication and methods of approach are discussed briefly in the first pages. The difference between geologic erosion and man-made erosion are explained, and the extent and effects of

soil and water erosion are described.

Soil types, slope, or topography, climatic conditions and the lack of a vegetative cover are listed as the natural causes of erosion. These, along with the man-made causes of improper land use and economic and social causes, are presented as the reasons that erosion has become such a problem in this country today.

The major part of the bulletin is devoted to the methods of controlling erosion. These methods are divided into proper land use, proper sized farm units, vegetative and cultural control, and mechanical control practices. A detailed account of the various control methods is included in the discussion.

Visit to SCS District Will Show Accomplishment

The question often arises as to just what work has been done in the soil conservation districts in South Dakota. Perhaps the best way to answer this question is to visit one of the districts and actually see what practices

are being adopted and recommended by the Supervisors. It is not possible, however, for all of us to take the time to make this personal visit. The Tri-County District, with headquarters at Faith, prepared the following summary of its work program to date. It is hoped that by carefully reading this brief account you may be able to have a good picture of the district progress.

	<u>Number</u>	<u>Size</u>	
Applications (approved)- - - - -	30	61,351	acres
Applications (tentatively suspended) - - - - -	7	12,014	"
Reconnaissance Survey- - - - -		358,279	"
Vegetative Survey- - - - -		41,248	"
Detail Conservation Survey - - - - -		36,764	"
Dams proposed (estimated)- - - - -	60	180	ac. ft.
Dams surveyed- - - - -	12	48	" "
Dams completed November 1, 1938 (estimated)- - - - -	18	54	" "
Dug-outs (proposed)- - - - -	20	20	" "
Water spreader systems feasible- - - - -		Some on every unit	
Water spreader systems surveyed- - - - -	5	115	acres
Water spreading to proposed tree planting sites- - - - -	2	8	"
Water spreader furrows - - - - -	12	40	"
Trees on contour - - - - -	1400	4	"
Oye (emergency cover crop) - - - - -	20 farms	800	"
Contour guide lines marked - - - - -		1610	"
Contour strip farmed (1938)- - - - -		700	"
Terraces constructed - - - - -	3 miles	80	"

The national, state and individual progress in erosion control is summarized. Three pages of the bulletin are devoted to a discussion of terms used in soil conservation. A bibliography of recent publications on this subject is also included.

After each briefly outlined topic a list of activities is given for the use of the students. These are presented in such a manner that the pupils will be able to learn the facts about soil conservation by actually carrying on some of the observations and practices.

Copies of this circular may be procured from your county agent or by writing to the State Extension Service at Brookings.

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What is Contour Farming?

Contour farming is the tilling of farm crops at right angles to the slope with the rows on the level rather than up and down hill.

Contour farming is a practice that rapidly is receiving more widespread adoption in South Dakota.

Contour farming is a practice that is easy to adopt and can be undertaken without changing the acreage of certain crops, although the arrangement of the crops in the fields is changed.

Contour farming may be more easily understood if certain questions are asked and brief answers given. Some of the questions most often heard relative to contour farming are these:

Q. What is the purpose of contour farming?

A. Contour farming saves the soil, conserves moisture, lowers the amount of power required for cultivation, and increases the yield of crops.

Q. In just what way will contour farming save the soil and conserve moisture?

A. Anything that can be done on a farm to hold water where it falls not only will result in a greater amount of water filtering into the soil, but also will hold the soil itself. Thus, corn listed on the contour will hold a large amount of water that otherwise would run off. Water running off a field carries soil with it. Doubling the speed of water will increase its soil-carrying capacity thirty-two times; therefore, it is evident that any method of checking the speed of the water down the cultivated slope will be effective in saving the soil.

Q. How does contour farming lower the amount of power required for cultivation?

A. Contour farming takes less tractor or horse power simply because, as everyone knows when he stops to think about it, it always is easier to pull anything on level ground than up hill. In other words, the contours just flatten the hills out.

Farmers everywhere who have been using contour farming testify to the truth of this saving in pull and fuel. Near Alcester, in a hilly area, Leonard Swanson planted cane and cut it with a binder on one hillside so steep that he said he did not think he would have been able to get the binder up and down the hill if the rows had been run that way.

Perry Emert, over by Hudson, reported he could keep his tractor going in high gear, even on the turns; whereas, he had

to shift before his rows were put on the contour. Also, Mr. Emmert figured --after keeping actual cost records-- that it cost him \$21.42 less to list fifty acres of corn in on the contour than to plow and surfact plant it.

Q. What evidence is there to show that contouring increases yields?

A. Near Sturgis this year, for example, W. R. Matkins grew 20-bushel wheat on the contour strips of 1937 summerfallow that were basin listed, but he got only between 11 and 12 bushels an acre on wheat seeded in the conventional manner on 1937 wheat ground.

Contour farming may make the difference between a good and a poor crop. This is particularly true in years of limited rainfall.

Q. What are the disadvantages of contour farming?

A. The disadvantages of contour farming are really very few. When applied to square fields, a number of short rows will result from contouring; but when field boundaries are rearranged by changing the fences onto the contour, too, this can be avoided. Even where some short rows do exist, the average length of all the rows will usually be the same length as when farmed along fence rows. Any point-row difficulty is over come anyway, though, by laying out the crop strips in uniform widths, and then putting the uneven areas between to grass. These act as protective buffers between the strips and furnish hay or pasture after the crop is off.

Q. Can any farmer go out and contour all of his fields?

A. Any farmer may lay out his own guide lines by using a farm level of any good home-made levelling device. All fields however, cannot and should not be con-

toured. Only those fields where the slope and the soil type are such that run-off occurs need to be farmed on the contour. Also, only the slopes that are regular and of sufficient area to make a satisfactory field can be contoured satisfactorily. Some farms may have all fields that can be contour cultivated; while others have few or none suitable for contouring.

Q. How would it be possible for a farmer to start contour farming?

A. First, he should examine the land he operates to determine if there is a necessity for this practice. If he lives in an area close to a CCC camp that is doing conservation work, or if he lives in a Soil Conservation District, he may seek the assistance of the Soil Conservation Service. He may also be able to receive some assistance from his County AAA office or from the County Agent. Or, he can do the work himself. There are a number of bulletins available at the County Agent's office that show in detail the means and methods of laying out contour lines.

Another point to remember about contour farming is that there is little or no cost in establishing this practice.

Q. Is the use of terraces with contour farming recommended?

A. A terrace is recognized as an effective means of erosion control on sloping land in areas of high rainfall. The matter of recommending terraces depends upon the specific conditions found on the field. It is hardly possible to make any general recommendations. If the land has enough slope and the rain falls so rapidly that the water cannot soak into the soil, the water may break over the contour ridge. In instances of that kind, terraces may be necessary.

Cultivating on the contour is a valuable aid in controlling soil losses.

Ruling Makes it Possible to Include
Shelterbelts in Cooperative Agreements

Under provisions of existing memoranda by which assistance of the Department of Agriculture is made available to the Brown-Marshall Soil Conservation District, coordinated plans have been worked out between the Supervisors and the Soil Conservation Service and the Forest Service which will make it possible for the Supervisors to include shelterbelts in the cooperative agreements with land owners and operators in addition to other assistance they have made available. This assistance is made available on farms where the cooperative agreement for a complete farm plan has been executed.

Under the present requirements of the Forest Service on shelterbelt plantings, it will be necessary for the regular shelterbelt cooperative agreement to be executed, in addition to the regular cooperative agreement between the co-operator and the Supervisors.

The Forest Service and the Soil Conservation Service will work together as a coordinated unit of the Department of Agriculture in carrying on the forestry work in this District. The Soil Conservation Service makes technical assistance available, lends equipment, makes available trees and seeds in limited quantities, and is responsible for assisting the Supervisors with supplemental plantings other than shelterbelts in the District.

The Forest Service will provide technical assistance to aid in developing forestry phases of farm plans, and will be responsible for assisting the District Supervisors in carrying on the action program involving shelterbelts, including planting stock, labor and other services.

As soon as this additional assistance was made available to the District Sup-

ervisors, they made plans for an intensive educational program, in cooperation with the county agents. A series of meetings were held, circular letters were mailed to the District land owners and occupiers, and the complete program was explained to persons living in the District.

The District program is reported to be progressing rapidly, and almost one hundred farmers in the area have indicated that they wish to obtain assistance in complete farm planning from the Supervisors. The technicians assigned to the area by the two Federal Services are busy working with the Supervisors in preparing the agreements and in making assistance available to the cooperators. A complete conservation plan is worked out for each farm, as a part of the general long-time District program to help control erosion and to maintain the fertility of the soils.

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"The soil type and small amount of rainfall that appears to be normal in parts of South Dakota were the cause of erosion for many years before the fields were cultivated. A thin, or sparse, vegetative cover was responsible for much of the natural erosion which occurred before man broke up the prairies of this state."

"The conservation of the soil is not always a difficult problem. Sometimes there are simple practices which can be followed that will assist in preventing erosion. If we will just till our crops properly, leave a high stubble, keep the soil covered or follow a good crop rotation, we may be able to retard the erosion of our soil and the loss of moisture."

Extension Circular 376
"Soil Conservation"

UNITED STATES
DEPARTMENT OF AGRICULTURE
SOIL CONSERVATION SERVICE

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